VIKING

TECHNICAL Practice

TELECOM SOLUTIONS FOR THE 21ST CENTURY

HD-1

Handset Interfaced Touch Tone Dialer

September 23, 2009

Add Touch Tone Capability to PABX Consoles

The **HD-1** Handset Dialer is a universal keypad Touch Tone generator capable of providing DTMF signaling.

The **HD-1** permits access via DTMF signaling to beepers, voice mail and banking services from phone system consoles or other equipment which cannot provide Touch Tones. The **HD-1** is easily installed in series with modular handsets and headsets or interfaces directly to Tip and Ring.

Features

- Easily connects in series with handset and headsets or interfaces directly to tip & ring with optional adapter kit
- Provides DTMF signaling across a dry pair of wires for in-house applications
- Compatible with console phone auxiliary handset jacks
- Powered by 9 V battery (provided) or optional **PS-1A** 13.8V AC adapter
- "Battery OK" LED indicator
- Adjustable Touch Tone volume control
- Switch selectable transmit (per handset wiring protocol)
- Optional Talk Battery adapter (**PS-1A**)

Applications

- Add DTMF Signaling to Console Phones for:
  1. Beeper paging
  2. Voice mail systems
  3. Automated attendants
  4. Banking services
- Access control (interfaced with an **RC-3** or **RC-2A** for door/gate control)

Phone...715.386.8861

info@vikingelectronics.com

http://www.vikingelectronics.com

Specifications

Power: 9 Volt battery provided. Optional Viking PS-1A (120V AC/13.8V AC 1.25A UL listed adapter)
Battery Life: 1 year average (under normal use)
Dimensions: 152mm x 83mm x 44mm (6" x 3.25" x 1.75")
Shipping Weight: .90 Kg (2 lbs)
Environmental: 0°C to 32°C (32°F to 90°F) with 5% to 95% non-condensing humidity
Connections: (1) handset plug, (1) handset jack, optional connections: (1) RJ11 plug, RJ11 jack

IF YOU HAVE A PROBLEM WITH A VIKING PRODUCT, PLEASE CONTACT: VIKING TECHNICAL SUPPORT AT (715) 386-8666

Our Technical Support Department is available for assistance Monday 8am - 4pm and Tuesday through Friday 8am - 5pm central time. So that we can give you better service, before you call please:

1. Know the model number, the serial number and what software version you have (see serial label).
2. Have your Technical Practice in front of you.
3. It is best if you are on site.

RETURNING PRODUCT FOR REPAIR

The following procedure is for equipment that needs repair:

1. Customer must contact Viking's Technical Support Department at 715-386-8666 to obtain a Return Authorization (RA) number. The customer MUST have a complete description of the problem, with all pertinent information regarding the defect, such as options set, conditions, symptoms, methods to duplicate problem, frequency of failure, etc.
2. Packing: Return equipment in original box or in proper packing so that damage will not occur while in transit. Static sensitive equipment such as a circuit board should be in an anti-static bag, sandwiched between foam and individually boxed. All equipment should be wrapped to avoid packing material lodging in or sticking to the equipment. Include ALL parts of the equipment. C.O.D. or freight collect shipments cannot be accepted. Ship cartons prepaid to:
   Viking Electronics, 1531 Industrial Street, Hudson, WI 54016
3. Return shipping address: Be sure to include your return shipping address inside the box. We cannot ship to a PO Box.
4. RA number on carton: In large printing, write the R.A. number on the outside of each carton being returned.

RETURNING PRODUCT FOR EXCHANGE

The following procedure is for equipment that has failed out-of-box (within 10 days of purchase):

1. Customer must contact Viking's Technical Support at 715-386-8666 to determine possible causes for the problem. The customer MUST be able to step through recommended tests for diagnosis.
2. If the Technical Support Product Specialist determines that the equipment is defective based on the customer's input and troubleshooting, a Return Authorization (R.A.) number will be issued. This number is valid for fourteen (14) calendar days from the date of issue.
3. After obtaining the R.A. number, return the approved equipment to your distributor, referencing the R.A. number. Your distributor will then replace the product over the counter at no charge. The distributor will then return the product to Viking using the same R.A. number.
4. **The distributor will NOT exchange this product without first obtaining the R.A. number from you. If you haven't followed the steps listed in 1, 2 and 3, be aware that you will have to pay a restocking charge.**

LIMITED WARRANTY

Viking warrants its products to be free from defects in the workmanship or materials, under normal use and service, for a period of one year from the date of purchase from any authorized Viking distributor or 18 months from the date manufactured, which ever is greater. If at any time during the warranty period, the product is deemed defective or malfunctions, return the product to Viking Electronics, Inc., 1531 Industrial Street, Hudson, WI., 54016. Customer must contact Viking's Technical Support Department at 715-386-8666 to obtain a Return Authorization (R.A.) number.

This warranty does not cover any damage to the product due to lightning, over voltage, under voltage, accident, misuse, abuse, negligence or any damage caused by use of the product by the purchaser or others.

NO OTHER WARRANTIES. VIKING MAKES NO WARRANTIES RELATING TO ITS PRODUCTS OTHER THAN AS DESCRIBED ABOVE AND DISCLAIMS ANY EXPRESS OR IMPLIED WARRANTIES OR MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE.

EXCLUSION OF CONSEQUENTIAL DAMAGES. VIKING SHALL NOT, UNDER ANY CIRCUMSTANCES, BE LIABLE TO PURCHASER, OR ANY OTHER PARTY, FOR CONSEQUENTIAL, INCIDENTAL, SPECIAL OR EXEMPLARY DAMAGES ARISING OUT OF OR RELATED TO THE SALE OR USE OF THE PRODUCT SOLD HEREUNDER.

EXCLUSIVE REMEDY AND LIMITATION OF LIABILITY. WHETHER IN AN ACTION BASED ON CONTRACT, TORT (INCLUDING NEGLIGENCE OR STRICT LIABILITY) OR ANY OTHER LEGAL THEORY, ANY LIABILITY OF VIKING SHALL BE LIMITED TO REPAIR OR REPLACEMENT OF THE PRODUCT, OR AT VIKING'S OPTION, REFUND OF THE PURCHASE PRICE AS THE EXCLUSIVE REMEDY AND ANY LIABILITY OF VIKING SHALL BE SO LIMITED.

IT IS EXPRESSLY UNDERSTOOD AND AGREED THAT EACH AND EVERY PROVISION OF THIS AGREEMENT WHICH PROVIDES FOR DISCLAIMER OF WARRANTIES, EXCLUSION OF CONSEQUENTIAL DAMAGES, AND EXCLUSIVE REMEDY AND LIMITATION OF LIABILITY, ARE SEVERABLE FROM ANY OTHER PROVISION AND EACH PROVISION IS A SEPARABLE AND INDEPENDENT ELEMENT OF RISK ALLOCATION AND IS INTENDED TO BE ENFORCED AS SUCH.

FCC REQUIREMENTS

This equipment complies with Part 68 of the FCC rules and the requirements adopted by the ACTA. On the side of this equipment is a label that contains, among other information, a product identifier in the format US:AAAEQ##TXXXX. If requested, this number must be provided to the telephone company.

The REN is used to determine the number of devices that may be connected to a telephone line. Excessive REN's on a telephone line may result in the devices not ringing in response to an incoming call. In most but not all areas, the sum of the REN's should not exceed five (5.0) To be certain of the number of devices that may be connected to a line, as determined by the total REN's, contact the local telephone company. For products approved after July 23, 2001, the REN for this product is part of the product identifier that has the format US:AAAEQ##TXXXX. The digits represented by ## are the REN without a decimal point (*e.g.*, 03 is a REN of 0.3). For earlier products, the REN is separately shown on the label.

The plug used to connect this equipment to the premises wiring and telephone network must comply with the applicable FCC Part 68 rules and requirements adopted by the ACTA. If your home has specially wired alarm equipment connected to the telephone line, ensure the installation of this HD-1 does not disable your alarm equipment. If you have questions about what will disable alarm equipment, consult your telephone company or a qualified installer.

If the HD-1 causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. But if advance notice isn't practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.

The telephone company may make changes in its facilities, equipment, operations, or procedures that could affect the operation of the equipment. If this happens, the telephone company will provide advance notice in order for you to make the necessary modifications to maintain uninterrupted service.

If trouble is experienced with the HD-1, for repair or warranty information, please contact:

Viking Electronics, Inc., 1531 Industrial Street, Hudson, WI 54016 (715) 386-8666

If the equipment is causing harm to the telephone network, the telephone company may request that you disconnect the equipment until the problem is resolved.

Connection to Party Line Service is subject to State Tariffs. Contact the state public utility commission, public service commission or corporation commission for information.

WHEN PROGRAMMING EMERGENCY NUMBERS AND (OR) MAKING TEST CALLS TO EMERGENCY NUMBERS:

Remain on the line and briefly explain to the dispatcher the reason for the call. Perform such activities in the off-peak hours, such as early morning or late evenings.

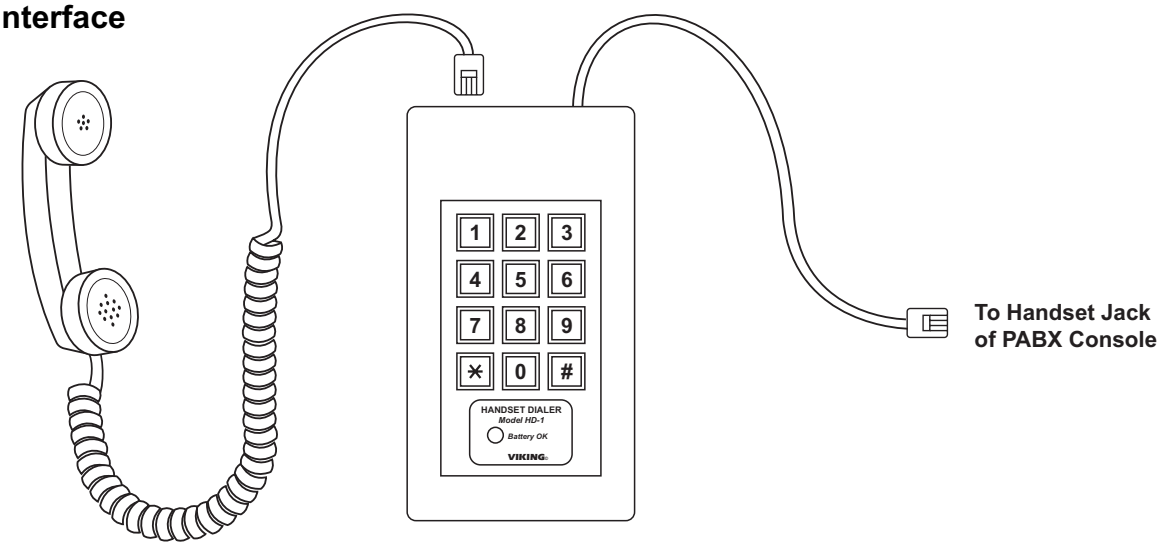
It is recommended that the customer install an AC surge arrester in the AC outlet to which this device is connected. This is to avoid damaging the equipment caused by local lightning strikes and other electrical surges.

PART 15 LIMITATIONS

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Installation and Programming

A. Handset Interface

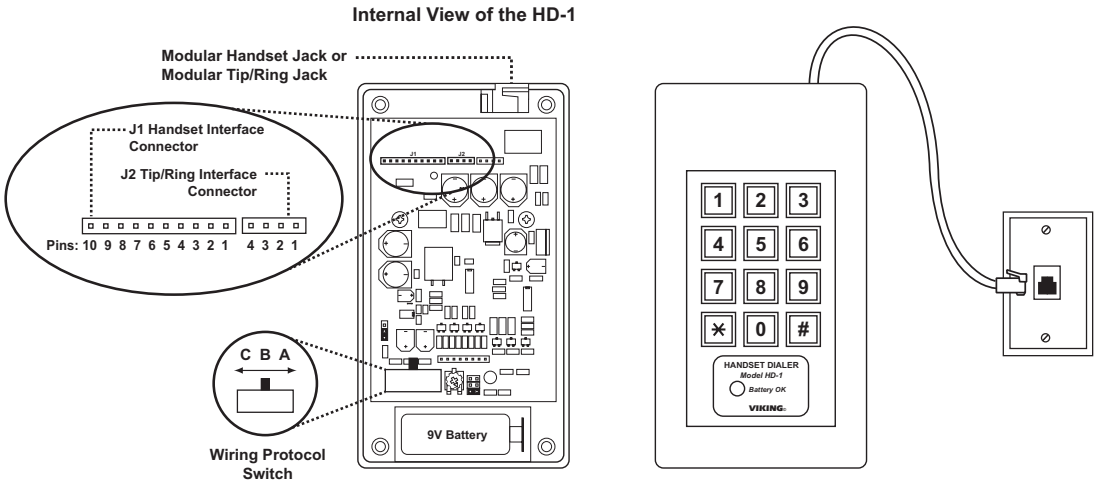


Connect the **HD-1** in series with your handset or headset as shown above.

Note: *If the handset or headset is terminated with a 5/8" on center twin telephone plug, a modular adapter plug and socket must be used. Recommended WESTEK part numbers: W478 and PTL-6.*

B. Tip & Ring Interface

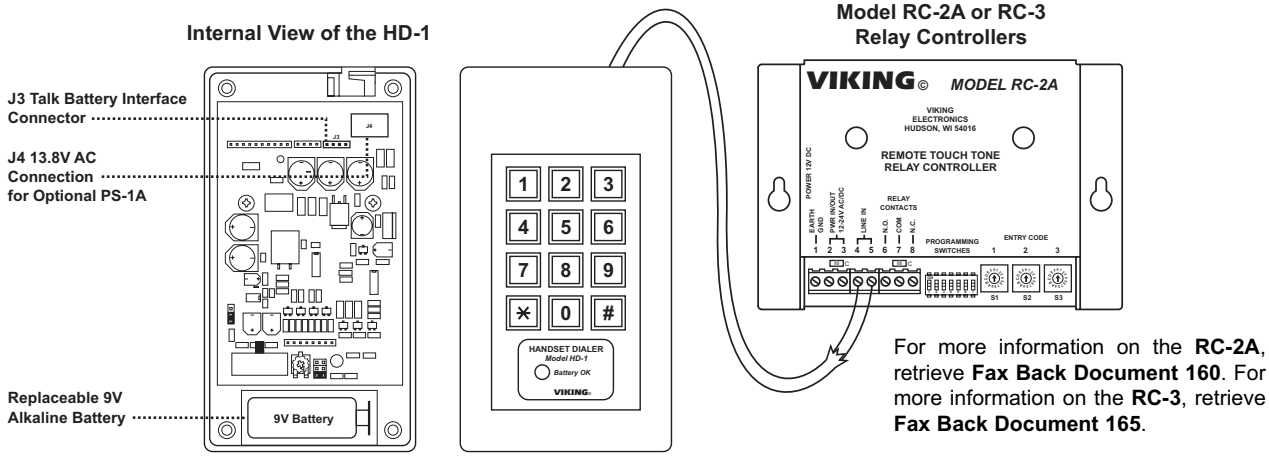
The **HD-1** can be used to dial touch tones directly on a Tip & Ring interface (C.O. line, analog PABX/KSU extension, etc.), it is necessary to change from the default handset cord to the Tip/Ring interface cord. To obtain an **HD-1** Tip/Ring interface cord, contact Viking Electronics Technical Support at: 715-386-8666 (part number: 260597, $5.00 each).



Step 1.	Obtain an **HD-1** Tip/Ring interface cord (6 ft cord with 4 pin connector, RJ11C plug and jack) from Viking Technical Support: 715-386-8666.
Step 2.	Remove the 4 screws on the back of the **HD-1** and remove the cover.
Step 3.	Locate **J1** (as shown above) and cut the wires on pins 1-8 of the **J1** connector. Then remove the cord and modular handset jack connected to **J1**. ***Caution:*** *Do **NOT** cut the red and black battery wires connected to **J1** pins 9 & 10.*
Step 4.	Connect the Tip/Ring interface cord to **J2**. ***Note:*** *Connector position 1 to pin 1 of **J2**.* Slide the modular Tip/Ring jack into place.
Step 5.	Slide Wiring Protocol Switch to position "**C**" as shown.
Step 6.	Replace the back cover and connect the modular cord from the phone to the modular jack on the **HD-1**.
Step 7.	Plug the **HD-1** cord into the modular jack the phone was connected to.

C. Talk Battery Interface

With the optional **PS-1A** installed, the **HD-1** is capable of supplying its own 24VDC Talk Battery to be used in conjunction with the model **RC-2A** or **RC-3** to create a stand alone door/gate security keypad control. This application will require the use of the **HD-1** Tip/Ring interface cord and installation of the optional **PS-1A**. To obtain an **HD-1** Tip/Ring interface cord, contact Viking Electronics Technical Support at: 715-386-8666. To obtain a **PS-1A** power adapter, go to www.vikingelectronics.com and click on "Spare Parts".



For more information on the **RC-2A**, retrieve **Fax Back Document 160**. For more information on the **RC-3**, retrieve **Fax Back Document 165**.

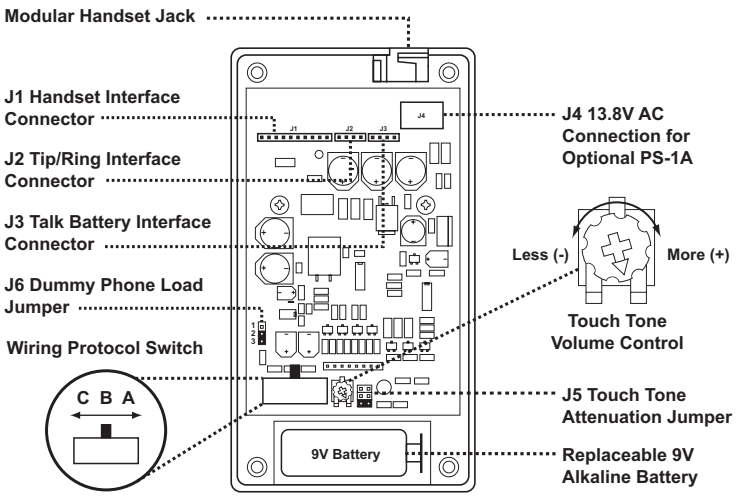
Step 1.	Follow steps 1-3 as shown in section **B** above.
Step 2.	Connect the Tip/Ring interface cord to **J3**. ***Note:*** *Connector position 1 to pin 1 of **J3**.* Slide the modular Tip/Ring jack into place.
Step 3.	Connect the **PS-1A** (13.8V AC adapter) to **J4**.
Step 4.	Remove the 9V battery and discard.
Step 5.	Re-assemble the **HD-1**.

Note: *The Wiring Protocol Switch has no effect in the Talk Battery Interface mode.*

D. Console Auxiliary Handset Jack

The **HD-1** can be installed on your console's auxiliary handset jack. To eliminate the need for an additional handset to inject the DTMF signal, simply move the jumper on **J6** (dummy phone load jumper) to positions 1 & 2 as shown below. Refer to **Operation**, section **A** for operating instructions.

Internal View of the HD-1



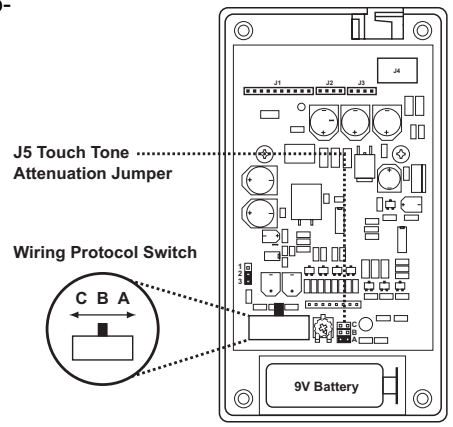
Operation

A. Handset Interface

The **HD-1** may require some volume and wiring protocol adjustments to function properly on your telephone. Start with the wiring protocol switch set to the "**A**" position.

Step 1.	Make a test call to an in-house PABX extension.
Step 2.	Enter several Touch Tones with the **HD-1**. The person on the extension you called should hear loud clear Touch Tones.
Step 3.	If Touch Tones are not heard, remove the back cover and slide the wiring protocol switch to the "**B**" position and try again.
Step 4.	If tones are still not heard, slide the wiring protocol switch to the "C" position and repeat.
Step 5.	If Touch Tones are severely distorted beyond what the volume control can attenuate, move **J5** to the "**B**" position and retry.
Step 6.	If tones are still too distorted, move **J5** to the "**C**" (maximum) position and then fine tune with volume control.

Internal View of the HD-1



Note: *All outgoing calls must be dialed with your console's keypad. Once the call is connected, you may use the* ***HD-1****.*

B. Tip/Ring Interface

The Tip/Ring interface is an easy solution to the over attenuated Touch Tone output caused by certain consoles with built in AGC (Automatic Gain Control) in their handset transmit circuitry. Connect Tip/Ring interface cord as explained in **Installation** section **B**. The **HD-1** can be used by simply going off-hook with your phone, and dialing on the **HD-1**.

C. Talk Battery Interface

The Talk Battery interface is used for any application where PABX or C.O. talk battery is not available or is too cumbersome to use. It is ideal for creating a stand alone door/gate security keypad control when used in conjunction with Viking model **RC-2A** or **RC-3**. For more information on Viking's **RC-2A**, retrieve **Fax Back Document 160**. For more information on Viking's **RC-3**, retrieve **Fax Back Document 165**.

D. Battery O.K. LED

The **HD-1** is equipped with a battery test circuit and LED indicator. The battery O.K. LED should light when a key on the keypad is pressed. If the LED does not light, replace the 9V battery by removing the back cover. The average battery life is approximately 1 year.

Due to the dynamic nature of the product design, the information contained in this document is subject to change without notice. Viking Electronics, and its affiliates and/or subsidiaries assume no responsibility for errors and omissions contained in this information. Revisions of this document or new editions of it may be issued to incorporate such changes.